Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Globalstar, Inc. Petition for Notice of Inquiry	)	RM-11808
Regarding the Operation of Outdoor U-NII-1	)	
Devices in the 5 GHz Band	)	

Opposition of Cisco Systems, Inc.

Globalstar has petitioned the Commission to open a Notice of Inquiry (NOI) for the purpose of taking comment from interested parties on alleged interference and coexistence issues in the 5150-5250 MHz band involving its mobile satellite service feeder links.[1] Globalstar states that these issues have arisen since rule changes applicable to radio local area network devices (RLANs) took effect in 2014. However, Globalstar has failed to bring forth credible data showing that its satellite system faces harmful interference, or that the Commission's assumptions about the use of the band and protection mechanisms were incorrect. Unless and until it is able to meet this minimal standard, the Commission should decline to use its limited resources to fulfill Globalstar's request.

[1] *Petition for Notice of Inquiry of Globalstar, Inc.*, RM-11808 (May 21, 2018) ("Petition"); *Consumer & Governmental Affairs Bureau Reference Information Center Petition for Notice of Inquiry*, Public Notice, Report No. 3092 (rel. June 6, 2018).

Cisco is a San Jose, California provider of Internet Protocol technology, equipment and solutions, including IEEE 802.11 RLAN routers. Subsequent to the Commission's 2014 decision amending the rules for unlicensed devices operating at 5150-5250 MHz, Cisco employed the improved flexibility permitted by the rule change to offer new outdoor and industrial wireless products. Customers deploy these devices outdoors as part of service provider and enterprise networks, at, for example, outdoor venues, mass transit stations, corporate campuses and universities. Cisco is therefore deeply interested not only in the rules that govern the U-NII-1 band but also in the development of sound spectrum sharing policies writ large.

Requiring clear and credible evidence that recently adopted rules are not performing as expected before regulatory action is taken is essential to the Commission's management of shared bands and, in particular, of sharing regimes involving unlicensed transmitters. If the Commission accepts a new, lower standard, taking action based on flawed analyses or mere allegations, the resulting regulatory risk will depress investment in shared bands, undermining the nation's ability to make efficient use of spectrum, in addition to wasting Commission resources. Globalstar's petition falls well short of this bar. Nothing in the material Globalstar has brought forward to date substantiates its claims about the alleged rise in the noise floor or the cause it claims to have identified. Nor is there evidence of harmful interference to Globalstar's operations.

In its Petition, Globalstar argues that it has "measured" a rise in the noise floor from six of its satellites, from 1 dB to 2 dB since the Commission in 2014 allowed outdoor operation of

unlicensed transmitters in the 5150-5250 MHz band. Globalstar acknowledges that its measurement technique is not finely calibrated, and can only record in increments of 1 dB, plus or minus 0.5 dB.[2] Without regard to the frailty of its measurement, Globalstar nonetheless declares that the noise floor is now at a level where it, in 2014, argued that the Commission should stop allowing new deployments of outdoor transmitters—a "backstop" to the 2014 rules that the Commission rightfully declined to adopt.[3] Globalstar associates the alleged 1-2 dB rise in the noise floor with an increase in unlicensed transmitters, apparently based on the view of its expert that interference could not be caused by other sources such as AeroMACs navigational systems or unmanned aircraft systems telemetry.[4] Globalstar then projects from the limited data it has to allege significant harm is about to descend upon its system unless the Commission takes "corrective" action.

As an initial matter, it is vitally important that in shared bands participants can continue to share successfully over time. That outcome is important to those who hold licenses with associated spectrum rights and to unlicensed manufacturers, operators and users. In fact, for the unlicensed community, successful sharing is critical since *every* unlicensed band is by definition a shared band—shared, that is, between unlicensed systems if not with licensed

[2] *See id.*, Appendix A at 5.

[3] *Revision of Part 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band*, First Report and Order, 29 FCC Rcd. 4127 (2014) ("*2014 5 GHz Order*"). Interestingly, Globalstar did not choose to petition for a rulemaking to revisit the issue of a backstop, probably because it had no new arguments to convince the Commission to do what it declined to do in 2014.

[4] Petition, Appendix B at 48-52.

users. Thus, the success of unlicensed technologies depends upon the efficacy of their spectrum sharing capabilities. Successful band sharing is vital for the Commission also, not just because the Commission has promoted sharing as a tool to wring more efficiency from spectrum,[5] but because Congress has endorsed a public policy of supporting sharing and directed the Commission to advance the use of both licensed and unlicensed spectrum.[6] The same is true for the National Telecommunications and Information Administration (NTIA) whose Administrator has recently reminded spectrum stakeholders of the critical need to share

[5] *See Oversight of the Federal Communications Commission: Hearing Before the Committee on Commerce, Science, and Transportation*, 114th Cong. 18-19, 21-22 (2016), *available at* https://www.gpo.gov/fdsys/pkg/CHRG-114shrg25081/pdf/CHRG-114shrg25081.pdf (Statement of Chairman (then Commissioner) Ajit Pai) (applauding the work of Senators in legislative proposals to open up the 5 GHz band to more intensive sharing with unlicensed); Commissioner Michael O'Reilly, Remarks Before CITEL PCC.II Delegation at 2 (June 26, 2017), *available at* https://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0626/DOC-345517A1.pdf ("as spectrum becomes more heavily utilized and shared between services, we need appropriate sharing mechanisms to protect users from harmful interference and provide a stable regulatory environment for those investing and deploying infrastructure in these bands"); Commissioner Jessica Rosenworcel, Remarks to the Mobile World Congress at 1 (Feb. 27, 2018), *available at* https://www.fcc.gov/document/remarks-commissioner-rosenworcel-mobile-world-congress-2018 (calling for "new models for spectrum access" involving sharing); *Oversight of the Federal Communications Commission: Hearing Before the Subcommittee on Communications and Technology, Committee on Energy and Commerce*, 115th Cong. 37 (2017), *available at* https://www.govinfo.gov/content/pkg/CHRG-115hhrg27889/pdf/CHRG-115hhrg27889.pdf (Statement of Commissioner Brendan Carr) ("we need to ensure that providers can choose from a mix of licensed, unlicensed, and shared spectrum bands to meet consumer demand.").

[6] *See* Consolidated Appropriations Act, 2018, H.R. 1625, 115th Cong. § 618 (2018) (Section 618 adopting a U.S. policy favoring the availability of unlicensed spectrum) (including Division P and Repack Airwaves Yielding Better Access for Users of Modern Services (RAY BAUM'S) Act of 2018 (H.R.4986)).

bands.[7] But if the Commission is going to meet these goals, and meet the growing need for unlicensed spectrum, it must adopt spectrum-sharing policies that work.

Therefore, when an allegation is made that the sharing conditions adopted by the Commission are not proving to be successful, it is important for the Commission to require credible evidence to back up that claim. If such evidence exists, the Commission should respond in a measured way—both procedurally and substantively.

In the case of Dynamic Frequency Selection (DFS), when some Terminal Doppler Weather Radars (TDWRs) servicing airports were experiencing harmful interference, the Federal Aviation Administration (FAA) could show the Commission and the unlicensed industry precisely how its radars were being affected. Because this was a safety of life issue, the Commission temporarily stopped allowing new equipment into the TDWR band. An investigation ensued that revealed a few outdoor manufacturers and a few outdoor users ignoring their DFS obligations.[8] The FCC then responded with much tighter rules and

[7] David J. Redl, Assistant Secretary for Communications and Information, NTIA, NTIA Spectrum Policy Symposium Remarks of Administration (June 12, 2018) *available at* https://www.ntia.doc.gov/speechtestimony/2018/remarks-assistant-secretary-redl-ntia-spectrum-policy-symposium ("Now we are looking for new ways to share spectrum among incumbents and new users.").

[8] *See, e.g.*, *Argos Net, Inc.*, Forfeiture Order, 28 FCC Rcd. 1126 (2013); *Rapidwave, LLC Saratoga Springs, Utah*, Forfeiture Order, 29 FCC Rcd. 1109 (2014).

equipment certification requirements to prevent further abuses. The balance of the industry was not the cause of the problem, but it willingly stepped up to the tougher rules.[9]

What Globalstar has brought forward for consideration, in comparison, is thin gruel. Globalstar says it has measured a rise in the noise floor of 2 dB. As an initial matter, all parties were aware going in to the 2014 decision that the noise floor was going to rise about 1 dB, and even in excess of 1 dB at peak times.[10] Globalstar agreed to a set of conditions for RLAN operations in the band—including the antenna mask—knowing that this nominal rise in the noise floor would likely occur.[11] NCTA asserted, and Globalstar did not demur in agreeing to conditions, that 1 dB would not harm Globalstar's operations, which at that time had well over 75,000 duplex subscribers worldwide.[12]

Today, Globalstar says it has measured a 2 dB rise in the noise floor during 2017, although Globalstar acknowledges that its equipment can only measure the noise floor in 1 dB

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[9] *See 2014 5 GHz Order* (new 47 C.F.R § 15.407(h) now includes explicit language on DFS technical requirements, while 47 C.F.R. § 15.407(i) requires that DFS cannot be disabled).

[10] Letter from Rick Chessen, Senior Vice President, Law and Regulatory Policy, NCTA, to Julius Knapp, Chief, Office of Engineering and Technology, FCC, ET Docket No. 13-49, at 9 & Attachment (filed Jan. 22, 2014) (attaching Dirk Grunwald, Rob Alderfer, and Kenneth Baker, CableLabs, *5 GHz UNII-1: Wi-Fi and Globalstar Sharing Analysis* (Jan. 2014)).

[11] Letter from Regina M. Keeney, Counsel for Globalstar, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 13-49 (filed Mar. 6, 2014) (supporting conditions to enable unlicensed devices in the band). Globalstar was responding to a set of conditions for band operations initially proposed by NCTA. *See* Letter from Rick Chessen, Senior Vice President, Law and Regulatory Policy, NCTA, to Julius Knapp, Chief, Office of Engineering and Technology, FCC, ET Docket No. 13-49 (filed Mar. 4, 2014).

[12] Globalstar, Inc., Annual Report (Form 10-K), at 31 (2014), *available at* https://www.globalstar.com/corporate/investors/annual-reports.

increments +/- 0.5 dB. In fact, therefore, we have no idea of the actual noise floor rise, if there's been one, if the new level is above what was anticipated in 2014, or why two of the eight satellites used for measurement did not report seeing a similar result. The noise floor could be roughly similar to the level NCTA calculated as the peak level for the noise floor increase back in 2014. Globalstar did not object to the increase in the noise floor NCTA projected at the time, nor did it object to NCTA's view that Globalstar's system had significant extra capacity to further insulate Globalstar's satellites from a rise in the noise floor.

Whatever the true increase in the noise floor, if there is one, Globalstar assumes it is 2 dB, and then points the finger at RLANs. In truth, there is nothing in Globalstar's showing that supports this blame game. Globalstar's data is associational at best. There are more RLANs in the band, says Globalstar. The noise floor (repeated here for the sake of argument) is rising, says Globalstar. But there is no evidence of cause and effect.[13] There is only Globalstar's assumption that the "blame" lies with RLANs. Globalstar does not explore noise sources from 5096-5150 MHz, adjacent spectrum uses, possible introduction of non-compliant equipment, or potential measurement errors and biases.[14] The importance of the Commission requiring

[13] *See* Petition at Appendix B, 48-52.

[14] According to the NTIA's Spectrum Compendium, aeronautical telemetry stations in the 5091-5150 MHz band could potentially be operating nearby at the Wichita Dwight D. Eisenhower National Airport in Wichita, Kansas (US44B). NTIA, *Federal Government Spectrum Use Reports 225 MHz – 7.125 GHz: 5030 – 5250 MHz*, at 3 (Aug. 21, 2017), https://www.ntia.doc.gov/files/ntia/publications/compendium/5030.00-5250.00_1Feb2017.pdf. In fact, NTIA notes that six federal agencies currently have a total of 276 assignments in the band, which NTIA carefully warns may well under-represent actual use as there are many transmitters per assignment. *Id.* at 4. The FAA is using the band for point-to-point services and unmanned aeronautical telemetry, and the Air Force has 77 federal authorizations for research, development, testing and evaluation. Additional high-power government radar operations are in bands above and

Globalstar to demonstrate that it has accounted for these alternative explanations is especially pressing given that the alleged rise in the noise floor apparently appeared suddenly, and does not appear to track actual market deployments of RLANs over time.

Nonetheless, from this associational analysis, Globalstar then extrapolates that harmful interference will happen sometime in the future—an extrapolation that further conflates clear understanding. For example, Globalstar characterizes the potential harm as degrading the received signal at the Globalstar handset, diminishing subscriber capacity, draining satellite power, and creating gaps in MSS signal coverage.[15] While this parade of "horribles" might seize the imagination, there is no evidence in Globalstar's filing that any of this has occurred, or is ever likely to. Not only is there substantial doubt that there truly has been a noise floor rise to 2 dB, Globalstar also has not demonstrated that such an increase, or even a larger one, would actually cause the harms Globalstar describes in the context of a system with significant capacity that is being taxed less and less over time.

Based on a wobbly evidentiary case, Globalstar wants an investigation of RLAN interference in the context of a Notice of Inquiry with one eye on limiting future outdoor deployments in the band. The Commission should refrain from taking a step down this road by initiating an inquiry. But this is not because incumbent protection is unimportant—quite the

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below the band that Globalstar said it measured. The Globalstar study also neglects to mention the recent change in the 5030-5250 MHz band, where fixed satellite service is now secondary to the aeronautical radionavigation service as of January 1, 2018 (US44A).

[15] Petition at 12.

contrary. Both the Commission and the unlicensed community take very seriously the responsibility to protect licensees. Rather, it is because Globalstar, now with a shrinking 69,000 duplex subscribers worldwide,[16] has not fulfilled its basic responsibility to establish that there is something genuinely amiss before seeking to upend a spectrum sharing arrangement that is delivering significant benefits to American consumers.

[16] Globalstar's duplex subscriber base has eroded more than 10% in the last 18 months. *Compare* Globalstar, Inc., Quarterly Report (Form 10-Q), at 33 (filed Nov. 3, 2016), *with* Globalstar, Inc., Quarterly Report (Form 10-Q), at 32 (filed May 10, 2018) https://www.globalstar.com/corporate/investors/sec-filings?page=1.

As far as Cisco has been able to determine, there is no established legal standard for dismissing a Petition for an NOI. The Commission therefore has complete discretion to do so, and that discretion should be exercised in fulfillment of a policy of promoting sharing with unlicensed devices. The policy favoring sharing for unlicensed is important—to both the Commission and to Congress. Participants in a sharing arrangement need to be serious, credible and clear when asserting that technical sharing conditions are not producing the intended effect. Otherwise, sharing obligations will be constantly revisited by the parties, dragging down finite Commission resources and preventing work on other matters. The Commission should dismiss the Petition.

Respectfully submitted,

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Certificate of Service

I hereby certify that, on this 6th day of July, 2018, I caused a copy of the foregoing pleading to be served via First Class mail, postage paid, upon:

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